Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Three-body Efimov physics near overlapping broad and narrow Feshbach resonances[1] FATIMA ANIS, YUJUN WANG, B.D. ESRY, J. R. Macdonald Laboratory, Dept. of Physics, Kansas State University — We study three-body Efimov physics near a narrow Feshbach resonance which lies on top of a broader one. By modeling the two-body interactions with a single-channel potential, we can simultaneously reproduce the two-body physics of such overlapping resonances and make the three-body calculations tractable. Overlapping Feshbach resonances like these are not uncommon in alkali atom systems. In particular, the first experimental observation of an Efimov feature [1] utilized states in Cs that displayed this behavior. We will study Efimov physics in two regimes: (i) as a function of scattering length obtained by scanning across the narrow resonance in the presence of the large background scattering length provided by the broad resonance and (ii) as a function of scattering length obtained by scanning across the broad resonance to see the effect of the narrow resonance. In particular, we will test the limits of three-body universality in these situations by systematically investigating the three-body recombination rates.

[1] T. Kraemer *et al*, Nature **440**, 315 (2006).

[1]Supported by the National Science Foundation and Air Force Office of Scientific Research.

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Date submitted: 26 Jan 2010 Electronic form version 1.4